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## THESIS

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AN ANALYSIS OF THE FACTORS AFFECTING THE  
CAREER ORIENTATION/TURNOVER BEHAVIOR OF  
FEMALE NAVAL OFFICERS

by

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December 1987

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An Analysis of the Factors Affecting  
the Career Orientation/Turnover Behavior  
of Female Naval Officers

by

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## ABSTRACT

This thesis examines the effects of biodemographic, personal, tenure, economic, civilian alternatives, and job related factors on the career orientation/turnover decisions of female Naval Officers. This study uses individual level data from the 1985 DOD Survey of Officer and Enlisted Personnel. A binary logit analysis was conducted on two groups of female officers to investigate the effects of the selected variables on short and long term career intentions. Logit analysis relates the likelihood of a female naval officer choosing to remain in service to specified turnover factors. The results highlight potential policy problems that may be addressed by manpower planners, to reduce turnover and increase career orientation of female naval officers.

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## TABLE OF CONTENTS

	page
I. INTRODUCTION	6
A. OVERVIEW	6
B. BACKGROUND	9
C. STRUCTURE OF THE STUDY	12
II. LITERATURE REVIEW	15
A. BEHAVIOR MOTIVATION THEORY	15
B. GENERAL TURNOVER RESEARCH	17
C. MILITARY TURNOVER STUDIES	21
D. GENDER ORIENTED TURNOVER RESEARCH	29
III. DATA AND METHODOLOGY	40
A. DATA	40
B. METHODOLOGY	43
C. PERSONNEL GROUPINGS	58
IV. ANALYSIS	60
A. MODEL ESTIMATION FOR TURNOVER BEHAVIOR	60
B. VARIABLE REDUCTION	65
C. RESULTS OF THE TURNOVER BEHAVIOR MODEL	68
D. VALIDATION OF THE TURNOVER BEHAVIOR MODEL	74
V. CONCLUSIONS	76
A. FINDINGS OF THE STUDY	76
B. RECOMMENDATIONS FOR FUTURE RESEARCH	78
LIST OF REFERENCES	80
INITIAL DISTRIBUTION LIST	84

## LIST OF TABLES

	page
1. OFFICER SEPARATION QUESTIONNAIRE RESULTS FOR FY-86	28
2. OFFICER RETENTION QUESTIONNAIRE RESULTS FOR FY-86	28
3. SUMMARY OF VARIABLES CONSIDERED IN PAST STUDIES	35
4. DETERMINANTS OF TURNOVER AND SIGN OF EFFECT	39
5. SAMPLE ALLOCATION OF NAVY OFFICERS BY GENDER	41
6. SUBJECT AREAS	42
7. INDEPENDENT VARIABLES	47
8. PERCENTAGE OF FEMALE OFFICERS INTENDING A 20 YEAR CAREER BY ATTRIBUTE	61
9. MEAN GROUP ATTRIBUTE VALUES FOR CAREER INTENTIONS	63
10. CAREER ORIENTATION/TURNOVER BEHAVIOR MODEL	69
11. INTENT VS. PREDICTED TURNOVER BEHAVIOR	75

## I. INTRODUCTION

### **A. OVERVIEW**

Turnover behavior has been studied from numerous perspectives and with varying techniques for many years. The reason for studying turnover is fundamental--it is costly to the organization. Quitting an organization disrupts the flow of work and introduces turbulence into the interaction between organizational structure and employee participation.

The price of voluntary turnover to an organization includes the direct costs associated with recruiting, training, and assimilating individual replacements, as well out-processing those who leave. In addition to these direct costs, the consequences of turnover have nonmonetary psychological and sociological ramifications as well. Voluntary turnover creates a disruption of social and communication patterns and structures within the organization. There is a productivity decline during the replacement process which can be attributed to the loss of high performers or valued coworkers. Turnover fosters decreased cohesion and diminished commitment among those who stay on the job. There is also the possibility of negative public relations from those who leave the organization.



Turnover also has positive effects which result in investments for the organization vice costs. Turnover can displace poor performers, increase structural flexibility, and infuse the organization with new knowledge/technology via replacements. [Mobley,1982]

Because of the unique aspects of military service, the U.S. Navy Officer Corps faces additional turnover costs beyond those of civilian institutions. The effects of turnover can be lessened somewhat within civilian organizations by the use of new hires at the same level from the appropriate labor market. The Navy, which functions as an Internal Labor Market (ILM), is restricted in the use of lateral entrants with few exceptions, such as doctors and lawyers. Access between the Navy and the labor market pool occurs at the lowest level and is initiated at a single point, or port-of-entry. All promotion and advancement proceeds from the port-of-entry up a hierarchical organizational structure.

Civilian employee's have the legal right to quit a job at any time for any reason. Military personnel have specific and severely constrained conditions under which they can terminate their "employment." This creates zones within which a decision to stay or leave the Navy is made. If more individuals than anticipated decide to leave the Navy at these decision points gaps may be formed in the pyramid hierarchy of the military. In the officer corps

such gaps can be devastating. Not only does the Navy incur the monetary and social costs associated with turnover, but also the more insidious costs associated with lost leadership and experience, the foundation of warfighting effectiveness. Because of the "up from the bottom" seniority promotion structure of the military, turnover can induce a self-propagating cycle for extended periods of time. This is because the gaps formed in the military hierarchy by attrition force fewer people to do more jobs, increasing the pressure on them, creating conditions which in turn may lead to more attrition.

Turnover research in the military and civilian sectors has traditionally focused on the behavior of men, because of their status as primary wage earners. Historically women were relegated to low income secondary labor markets where their working was considered only a temporary condition before marriage or children returned them to the home. The social/sexual upheaval of the 60's and 70's brought with it a new realization of the role of women, shattering traditionally held stereotypes. With the emergence of greater and greater numbers of working women during the decade of 80's, their power and potential in the market place has risen dramatically. The military has not been immune to the social and demographic changes occurring in society. Women officers now participate in all aspects of military service except those expressly prohibited by law.

Because of the increased participation rates of women throughout the military, the turnover behavior of women should be examined.

## **B. BACKGROUND**

The Navy has traditionally been a male-dominated institution. The old mariner's superstitious injunction about women on ships being bad luck is one of the more colorful anecdotes reflecting this male domination. Women were integrated into specific jobs within the Navy only in cases of national emergency. Even this practice is relatively recent, starting in World War I. After the crises had passed, these job categories were either disestablished or filled by males. Women were returned to civilian status. Whether or not the women who filled these jobs were more qualified or more effective than the men who replaced them did not enter into the decision. The importance of women during a national crises can be graphically illustrated in a statement regarding the United States use of women in the civilian work force by Albert Speer, Adolf Hitler's Weapons Production Chief during World War II.

How wise you were to bring women into your military and into your labor force. Had we done that initially, as you did, it could well have affected the whole course of the war. We would have found out, as you did, that women were equally effective, and for some skills, superior to males. [Binkin,1977]

The Navy has undergone substantial growth during the decade of the 80's. The number of deployable ships has grown from 542 to 600, an 11 percent increase [Lockman,1986]. A similar growth has occurred in the number of airframes, shore installations, and specialized billets, such as joint specialist. This material/technological growth has occurred within the structure of the All Volunteer Force which has necessitated higher and higher levels of defense spending to entice and maintain the quality and quantity of personnel to meet the force manning requirements. Because of the technological complexity of the hulls and weapons systems being introduced into the fleet, the officers who man and manage theses systems require more training than ever before. The cost of officer training conducted prior to the officer's ever reporting for duty in an operational environment has increased fivefold in the past ten years [Steel,1987].

This large human capital investment by the Navy in training its officers, forces manpower planners to adopt policies centered on retention of officers vice replacement if they are to maintain system quality. It has been shown to be less costly to retain an officer for a 20 year career than it is to recruit and train a new officer only to loose that training and experience every six to ten years. [Steele,1987] Thus, controlling turnover plays a

substantial role in policy decisions such as compensation, retirement, and quality of life.

The Navy of the late 80's finds itself between the horns of a dilemma. On one horn is the need to increase officer manpower retention with steadily increasing training costs to meet increasing force requirements. On the other horn, acting to contradict increased requirements, is a dwindling supply of men, budget cuts and mandated officer reductions brought about by several factors.

Demographic studies show that the number of 17 to 21 year old males in the population will decline through the 1980's into the 1990's. [Lockman,1986] This decreasing manpower pool limits the number of eligible males which the Navy can draw from to man the 600 ship fleet.

At a time when more money is needed to recruit eligible young men in competition with the civilian market place, the influence of the Balanced Budget and Emergency Deficit Control Act of 1985 (Gramm-Rudman-Hollings), is placing stronger budgetary constraints on the Department of Defense.

The final constraint imposed by this horn of the dilemma is the recent officer reduction mandated by congress. The Navy is told to reduce the number of officers just when it desperately needs to expand to fulfill the manning requirements of the 600 ship Navy.

If the Navy is to overcome its manpower shortages, women service members may be the answer. With the emergence of

increasing numbers of highly qualified women, filling ever expanding roles in the military, their traditional role of augmenting men becomes vital. If female Naval Officers can provide the Navy with a readily available pool of career oriented officers, current shortages may be overcome. This thesis seeks to analyze the factors affecting the turnover decisions of female Naval Officers.

## C. STRUCTURE OF THE STUDY

### 1. Data Base

The data base used for this thesis was the 1985 DOD Survey of Officer and Enlisted Personnel. This survey was conducted for the Office of the Assistant Secretary of Defense (Force Management and Personnel) by the Defense Manpower Data Center. The survey is a cross sectional, stratified sample of active duty officers and enlisted personnel serving in all branches of the military on 30 September 1984. The officer sample was stratified by gender, with higher sampling rates of females and officers to allow for more detailed analysis. For the Navy, the total officer sample size consisted of 5,046 members of all ranks, 1,310 were female. The survey is useful for analysis of:

- responses to changes in military policy, compensation and benefits
- family well being, demand for family service programs, household and familial characteristics



- differences in career orientation, attitudes, experience and demographics.

## **2. Research Questions**

This thesis analyzes the relative importance of biodemographic, economic, family and job-related factors have on the short-term and long-term career orientation/turnover decisions of female Naval Officers. Subsidiary questions include career orientation between martial groups (married to civilian/married to service member), and a comparison of the turnover decisions between men and women in like occupations.

## **3. Methodology**

Because of the availability of individual level data and a dichotomous dependent variable, a LOGIT discrete choice model will be applied. Use of this model will result in calculations of the likelihood of a female Naval Officer making a specific career decision given her various individual attributes or characteristics.

## **4. Organization**

Chapter II will review the related literature on the subject of turnover and career decisions in both civilian and military applications. Chapter III will describe the Data Base used, develop and explain the variables used to measure short-term and long-term turnover intentions, and specify the model and the statistical analysis to be applied. Chapter IV describes the analysis of short-term

and long-term career decisions by female Naval Officers. This chapter also includes an analysis of the predictive accuracy of the specified model. Chapter V presents the summary and conclusions drawn from the model estimations as well as a discussion of the implications for future manpower policy.

## II. LITERATURE REVIEW

### A. BEHAVIOR MOTIVATION THEORY

The study of employee turnover has been approached from a myriad of perspectives by researchers of differing disciplines, most notably economists, sociologists and psychologists. Each discipline has added to the general body of knowledge but there has been extensive disagreement by researchers over the factors which induce turnover, or the most appropriate model for analyzing the subject.

Turnover, or quitting, are for the purposes of this thesis, considered synonymous, voluntary actions by individuals. Therefore because we are considering the actions of individuals it is worthwhile to review several of the motivational theories being expounded to explain individual human behavior. Understanding these theories will aid in developing a conceptual model of the factors which affect turnover decisions.

One of the major theories of motivation is the "need hierarchy." Developed by psychologist Abraham Maslow (1970). According to Maslow the source of human motivation is the fulfillment of certain needs. These needs are biological or instinctive and often influence behavior unconsciously.

Maslow's theory states that there are five major, levels of needs in an ascending hierarchy: physiological, safety, social, self-esteem and self actualization. Once a need is satisfied it no longer exerts an influence. Thus, if an organization such as the Navy does not provide a means of satisfying an individuals needs, that individual will leave the military to seek satisfaction someplace else.

The "equity theory" proposed by Adams (1965) views motivation from the standpoint of social comparison. Adams proposes that motivation has its foundation in the perceptual aspects of interpersonal dynamics. Each individual brings certain personal assets (or inputs) to his job, such as experience, education, skill etc. In return for work the individual receives certain outputs (or benefits) such as pay, advancement, recognition. Through and internal, individual measuring system each person tallies inputs versus outputs into a ratio, for himself and those around him. If a coworkers ratio is perceived as not equal, that is more compensation for less work, then an inequity is perceived which causes tension. As tension mounts an individual will seek to reduce this tension either by lowering his input, or leaving the organization.

Goal setting is the motivational theory set forth by Locke (1968). Locke's theory is founded on the premise that people behave rationally and consciously. Therefore, conscious ideas regulate a persons actions. Goals have two

major functions, they are the basis or foundation for individual motivation and they direct behavior. From Locke's perspective if an individual decides that another job, or for the Naval Officer a civilian job, provides him with the best means to reach a personal goal he will opt to leave the military service.

## **B. GENERAL TURNOVER RESEARCH**

Turnover research has provided a broad field of study for various schools of thought; yet each school has looked at turnover within the narrow confines of its discipline. Psychologists study turnover in relationship to job satisfaction, personality, intelligence or aptitude. Sociologists focus on the impact of structural determinants while economists stress the relationship between turnover and pecuniary factors or business cycles. [Murchinsky and Morrow, 1980]

Porter and Steers (1973) in a comprehensive review of turnover research to that time, found that overall job satisfaction was found to be consistently and inversely related to turnover. A global definition of job satisfaction is given by Murchinsky (1983)

...job satisfaction is an emotional, affective response. Affect refers to feelings of liking or disliking. Therefore, job satisfaction is the extent to which a person derives pleasure from a job.... Job satisfaction is strictly an individual response, unlike morale, which is a group response. The morale of a group could be high, while a person in that group is dissatisfied.

Porter and Steers in an effort to break down the global concept of job satisfaction for better analysis, found that four categories of internal factors could be related to turnover behavior: (1) organization wide factors, (2) immediate work environment factors, (3) job content factors, and (4) personal factors.

Organization wide factors can be defined as those variables affecting the individual that are determined by forces or persons outside of the individuals sphere of influence. Factors such as pay and promotion fall into this group of factors. These factors have consistently been shown to be negatively correlated to turnover behavior.

Immediate work environment factors center around the individuals immediate work environment and include such items as supervisory style, work unit size and peer group interaction. These factors have shown a mixed relationship to turnover regardless of the type of work or gender being observed.

Job content factors are the skills and activities required for the successful performance of a job. These requirements can either be the mechanism for personal fulfillment or a source of internal conflict and dissatisfaction. Items in this category include job content, task repetitiveness, responsiveness and autonomy. These factors have shown an overall negative relationship to turnover behavior.



Personal factors are those unique to an individual and include age, tenure, family size and composition, and personality. Lee and Wilbur (1985) in an evaluation of the effects of age on job satisfaction found that job satisfaction increased with age. Younger employees were less satisfied with the intrinsic characteristics of work such as creativity, utilization, challenge, independence, and responsibility. Older workers found satisfaction with such factors as promotion opportunities, compensation and working conditions. These can be considered intrinsic characteristics. Naylor and Vincent (1959) and Stone and Athelston (1969) found among females that increased family size indicated increased tendencies to withdraw from the labor force. While Knowles (1964) found increased family size was inversely related to turnover for males.

Flowers and Huges (1973) looked at turnover behavior from the reciprocal viewpoint of why employee's stay in a job. Using the concept of inertia, they focused on the idea that employees will stay with an organization until some force causes them to leave. They again looked at job satisfaction and included environmental pressures from inside and outside of a company as independent variables.

Steers (1977), Koch and Steers (1976), and Porter et al (1974) found that commitment to an organization is often a better predictor of turnover than is job satisfaction. Porter (1974) after a study of 382 hospital employees and

119 scientist and engineers characterized organizational commitment as:

1. a strong belief in and acceptance of the organization's goals and values;
2. a willingness to exert considerable effort on behalf of the organization; and
3. a strong desire to maintain membership in the organization.

Steers' model used three main categories of antecedents for commitment, Personal Characteristics, Job Characteristics and Work Experience. Using stepwise multiple regression with commitment as the dependent variable he found that six antecedent variables were significantly associated with commitment: need for achievement, group attitudes, education, organizational dependability, personal importance to the organization and task identity. Work experiences were found to be more closely related to commitment than personal or job characteristics.

Mobley, Griffth, Hand and Meglino (1979) presented a conceptual model that distinguished between satisfaction (present oriented) and attraction/expected utility (future oriented) in order to account for nonwork values and nonwork consequences.

In an attempt to analyze the interpersonal nature of turnover within work groups Krackhardt and Porter (1986) looked at turnover behavior and its relationship to

communication networks. This study broke with the traditional view of turnover as an individual behavior. Krackhardt and Porter assumed that employees react interdependently within the work environment. How one individual acts affects how others in the work group will act depending on the bonds and role similarity of the group as determined by informal communication networks. Krackhardt and Porter concluded that turnover occurs in clusters, the clusters are associated with bonded groups within the organization having similar communications networks.

In addition to demographic, job related, and job satisfaction variables Arnold and Feldman (1982) identified the importance of actual or perceived alternate employment opportunities have a significant influence on turnover behavior. Using a series of multiple regression equations on a sample of 1,058 Canadian accountants, they found that the most powerful model of turnover behavior ( $R = .44$ ) contained four significant individual predictor variables: tenure, job satisfaction, perceived job security, and intentions to search for/perceived alternate positions.

### **C. MILITARY TURNOVER STUDIES**

Stolzenberg and Winkler (1983) conducted an extensive literature review of turnover studies and related them specifically to the military. The framework for their

review centered on the work of Thibaut and Kelley's (1959) research on how individuals evaluate their membership in groups. The key concepts of their model evaluate Comparison Levels, how satisfied is a person with membership in his group, and Comparison Level for Alternatives, the perceived satisfaction to be gained from employment in an alternative organization.

Stolzenberg and Winkler examined a number of different factors affecting military "employment." They found that the military compensation system is much more complex than most civilian compensation schemes. The complexity of military pay suggests that individuals will have a difficult time calculating the total value of their income, especially the future value of that income when calculating pay as it impacts on career decisions. In a related study Chow and Polich (1980) found that members of the military service grossly underestimated the value of benefits and allowances which are a part of military compensation. Stolzenberg and Winkler also found that although pecuniary factors played an important part in the turnover of military members, non-pecuniary factors such as family demands, location and job satisfaction had a significant impact on attrition behavior that rivaled if not exceed pay in certain studies. They also found that satisfaction with pay differed with the length of service of an individual. Pay was the most important factor affecting the attrition of first term

personnel, while job satisfaction became the driving factor for subsequent terms of service individuals.

While the majority of military turnover studies focus on the aspects of compensation because of its relationship with recruiting and maintaining the All Volunteer Force, Faris (1984) suggests that a purely economic model is insufficient to account for retention patterns. He found that market place factors account for only half of the variables to which service members respond. The other half respond to family traditions and normative considerations. In fact, he states that for junior officers:

...the processes of retention of junior officers and the formation of career decisions are relatively unaffected by the economic factors of pay, benefits, and marketability (as measured by current education), though no doubt for many officers these are key considerations. In fact, it appears that most career-oriented officers make their decision to remain in the military despite perceptions of economic loss. Much more significant in determining career plans are the satisfaction of the military work role, and the relationships with co-workers and supervisors.

Fredland and Little (1983) in a comparative multiple regression analysis between 18 year olds in civilian occupations and the military found that job satisfaction was lower for military personnel. They found that rather than the personal characteristics of individuals, specific elements of job satisfaction accounted for most of the divergence. Factors that influenced the difference in satisfaction included poor job match, rotation policies and perceptions of organizational instability. Coincidentally

their research shows that demographic variables (age, race, marital status, education, etc.) appeared to have only slight influence on job satisfaction in the military.

Molowidlo and Lawton (1984) examined three alternate models of turnover behavior among soldiers. Their models attempted to explain the causal relationships between satisfaction, expectancy about consequences of staying, expectancy about the consequences of leaving and intentions to stay or leave. Their premise was that dissatisfaction affects turnover primarily through its influence on expectancy. They conclude that management strategies for affecting turnover should focus directly on job satisfaction in an attempt to keep feelings of dissatisfaction from developing. Molowidlo and Lawton suggest that improving such job related factors as supervisory practices, pay and job conditions would hold down turnover.

Warner and Goldberg (1984) used the Annualized Cost of Leaving (ACOL) model for a probit analysis of non-pecuniary factors affecting the retention behavior of Navy first term enlistees. The ACOL model is used by manpower planners in the Navy to predict retention rates for various grades and length of service. The ACOL model is based on the enlistee making a choice to stay or leave the Navy after evaluating the utility associated with leaving compared to reenlisting. Utility is composed of two calculated income flows. The first is the present value of the income associated with the



outcome of a stay/leave decision. The second is the present value of the non-pecuniary aspects (in monetary terms) of staying or leaving the service. Present and future values of military pay and retirement play an important role in the ACOL model, but as Chow and Polich (1980) found, the monetary value of non-pecuniary factors or payment in kind compensation are often severely underestimated by service members. Warner and Goldberg did find that non-pecuniary factors such as sea duty exert significant influence on turnover behavior.

Arguden (1986) compared four predictive models of retention, the Present Value of Cost of Leaving (PVCOL), ACOL, Perceived Pay Model (PPM), and the Dynamic Retention Model (DRM). The PVCOL model assumes that the expected value of an individuals future income streams, and implicit discount rate are known with some degree of certainty. This model does not take into account such factors as taste. The PPM model like the PVCOL model calculates the present value of leaving at future decision points, but compares them against a weighted average of the returns to staying. The DRM models the promotion process, reflecting the uncertainty of future military pay. It also takes into account tastes and a factor called random shock, which accounts for individual circumstances which would alter the strictly monetary comparison of future income streams. Arguden suggests that tastes for military service play an important

role in the stay/leave decision. If there were no accounting for tastes, he theorizes, then every service member with the same military and civilian income opportunities would make the same turnover decision.

Bluedorn (1982) synthesized the models of Price (1977), the organizational commitment model (Porter et al, 1974) and the job satisfaction model developed by Mobley (1977). Bluedorn's data samples were mostly female (92/94%) employees of the operations departments of two large insurance companies. Bluedorn's study included variables (besides those demographic, job related and environmental factors already discussed) for environmental opportunities and foregone environmental opportunities. These two variables seek to quantify the perceived availability of job opportunities available and forgone by the individual. The strength of Bluedorn's research is that he was able to test his model on an other sample thereby cross-validating the predictive power of his model (Murchinsky and Tuttle, 1979). The results of his cross-validation showed that organizational commitment, job search and intent to leave showed significant importance in explaining turnover decisions across both samples.

Mowday and Lee (1986) observed that the propensity to become committed among Air Force Academy Cadets, influenced initial attitudes and subsequent turnover. They concluded that while both situational and individual characteristics

are important in shaping attitudes, those cadets who entered the Academy with a higher relative commitment tended to remain higher in commitment over time relative to other cadets.

The Separation and Retention Questionnaire for FY-86 provides cumulative data on the factors which service members departing and remaining in the Navy considered significant influences affecting their decision. The survey is conducted under the auspices of the Chief Of Naval Operations on a voluntary basis, by those officers and enlisted personnel separating from the Navy. The retention portion is part of an annual random sample of 1,664 officers stratified by warfare/career specialty. While the survey is only a counting of the factors with no analysis, it provides an insight into the correlates associated with the turnover/career decisions of Naval Officers and provides a useful summary of the affective variables noted in previous studies. Table 1 and Table 2 list the top ten reasons for leaving and staying in the Navy respectively.

TABLE 1

## OFFICER SEPARATION QUESTIONNAIRE RESULTS FOR FY-86

<u>RANKING</u>	<u>DESCRIPTION</u>
1	Too much family separation
2	Too much crisis management
3	Unable to sufficiently plan and control career
4	Suppressed initiative, creativity, professional stimulation
5	Insufficient managerial/leadership qualities of seniors
6	Lack of recognition for accomplishment, self respect
7	Problems with assignments/detailing
8	Possible erosion of benefits
9	Job dissatisfaction
10	Poor utilization of abilities, skills and education.

**Source:** Department of the Navy; Separation/Retention Questionnaire Results for FY-86

TABLE 2

## OFFICER RETENTION QUESTIONNAIRE RESULTS FOR FY-86

<u>RANKING</u>	<u>DESCRIPTION</u>
1	To perform meaningful and challenging work
2	Obtain positions of responsibility/authority
3	To use my abilities, skills, education
4	For the opportunity to serve my country
5	To pursue a career in a given specialty
6	To obtain a military retirement
7	To obtain good pay and allowances
8	Because there is opportunity to show initiative
9	To enjoy Navy lifestyle/Esprit de Corps
10	For the opportunity to command

**Source:** Department of the Navy; Separation/Retention Questionnaire Results for FY-1986

#### D. GENDER ORIENTED TURNOVER RESEARCH

Viscusi (1979) points out that:

The stereotypical view of female employees is that they have relatively weak job attachment and that, in particular, they are especially prone to voluntary job separations.....The most familiar economic motivation underlying potential male-female quit differences is that women often leave the labor market to bear and raise children. Moreover, since wives typically earn lower wage rates than do their spouses, they may serve as secondary earners, entering the labor force during periods of temporary economic need and exiting thereafter.

Viscusi's logit analysis on data from the University of Michigan Panel Study of Income Dynamics, includes 3000 men and 2000 women. His research found that for workers (male and female) with less than a year of experience women quit twice as often as men. However, for all workers with a year or more of experience, the turnover percentage for females was 5.9 as compared to 6.4 for males. Viscusi states that once past the first year of employment, women are more stable employees than men. He also finds empirically that:

1. Male and female quit behavior is different in nature and cannot be captured by gender specific constant terms.
2. The effect of education is consistently positive and substantial.
3. Marriage and children stabilize turnover for both men and women. The stabilizing effect is stronger for women.
4. The most important demographic variable is tenure within the organization.
5. Male and females respond almost identically to financial incentives.

To measure and compare differences between male and female turnover behavior Viscusi "swaps" male and female coefficients. He isolates job specific differences in the explanatory variables, keeping experience and personal characteristics of women the same. He found that:

the primary difference in male and female quit behavior is differences in their jobs' characteristics rather than a difference in quit behavior or personal characteristics ....If women had the same job characteristics and the same percentage with more than one year of experience at the firm, their predicted quit rate would be below that for men.

Angle and Perry (1981) used an organizational commitment model as defined by Porter et al (1974), in an analysis of 1244 transportation employees. Women transportation workers within the data sample, performed tasks identical to men. Their finding substantiate Viscusi's in that females were more highly committed to their organizations than males.

In an effort to compare short-term and long-term effects on quitting Blau and Kahn (1984) used probit analysis on the data provided by the National Longitudinal Survey of Young Men and women. They emphasized current job characteristics and experience as their independent variables. Their findings included:

1. Length of tenure and current wages are significantly and negatively associated with quitting for all gender groups.
2. In contrast to Viscusi (1979), but in line with earlier studies; Naylor and Vincent (1959), Stone and Athelston (1969), Knowles (1964), marriage and children were shown to increase quit behavior for women and decrease quits for men.



3. Using coefficient swapping techniques similar to Viscusi, Blau and Kahn found that the predicted female quit rate was somewhat lower than the predicted male rate.

In a study using the National Longitudinal Survey of Youth Labor Market Behavior, Waite and Berryman (1985) used a logit analysis on women in nontraditional occupations. The military was considered a nontraditional occupation. Waite and Berryman used over 50 individual variables under the following major categories:

- Job Traditionality
- Job Mismatch
- Job Attractiveness
- Attractiveness of Alternatives
- Resources
- Labor Market Alternatives

This study tested six hypotheses, two were germane to this study.

1. Women with higher education desires are more likely than those with lower academic ability to plan continuous labor force participation in traditionally male occupations.
2. Marital and child bearing expectations will affect the gender typicality of a woman's but not of a man's occupational choice.

Their results concerning these two hypothesis are that educational desires of military women have no effect on turnover presumably because the military offers



opportunities for advanced education. Marriage and child bearing have a small effect that is not significant.

The importance to this thesis of the Waite and Berryman research is their exploration of the effects of gender specific influence in the personal characteristics of the women in the study. Psychological research has determined that in the majority of two parent families the mother has the greatest influence on the personality of the daughter. Waite and Berryman take into account when developing their independent variables the effects of such factors as the mothers choice of career, educational achievements, and type of work. They hypothesis that the mother's selection of career/education and the daughter's perception of the attractiveness of that choice will influence and determine the realm of choices available to her. If maternal influences can be captured in current data it should provide a gender specific insight into turnover behavior.

Feroglia (1986) looked at career intentions compared to work group factors for Air Force enlisted women. She found that the factors which contributed significantly to intent to leave the Air Force centered on poor job matching. Such items as unfavorable work schedules, undesirable types of work and excessively hot or cold work environment resulted in higher incidence of turnover. Variables that have been shown to be significant in other studies such as, gender of

supervisor, percent of females or males in the work group did not impact on the decision to quit.

Wilcove (1983) conducted a time-series analysis of 1000 female Navy recruits in an attempt to predict attrition. At the end of a four year enlistment period, 40 percent of Wilcove's sample had attrited. Wilcove found that the best variables to predict turnover were:

marital status and type of relationships typically formed with males, whether or not a person had a female friend or relative who had been in the military, the degree to which a person needed a job, whether peers and friends approved or disapproved of Navy enlistment, and the need for psychological security. Survivors were more likely than attrites to have many male friends as acquaintances rather than a few close male friends, to have a female friend or relative who had been in the military, to have been employed at the time of enlistment, to have received the support of friends and peers to enlist, and to need the psychological security they could find in the Navy.

Arrowood (1986) looked at the effects of personal, human capital and job related characteristics on the quit decisions of managerial or professional level women. She performed three separate analysis on her data from a large manufacturing firm; a logit cross-sectional analysis, a logit on pooled cohort data, and a proportional hazard analysis. She found that job related factors such as promotion, salary and performance rating significantly reduced quitting behavior. In contrast to earlier studies (with the exception of Viscusi) Arrowood found that marriage and children reduced a managerial women's propensity to quit. Her analysis concludes that promotion has the

strongest effect on turnover behavior, acting to reduce the incident of quits.

Table 3 provides a summary of the studies and variables reviewed in this chapter. Table 4 is a listing of the predicted signs for individual factors within variable groups found to significantly contribute to turnover behavior.

**TABLE 3**  
**SUMMARY OF VARIABLES CONSIDERED IN PAST STUDIES**

**VARIABLES / FACTORS**

<u>RESEARCHERS</u>	<u>SEX</u>	<u>AGE</u>	<u>RACE</u>	<u>M.STATUS</u>	<u>CHILD</u>	<u>TENURE</u>	<u>INCOME</u>
Porter/Steers		X		X	X	X	X
Lee/Wilbur	X	X				X	
Naylor/Vincent	X	X				X	
Stone/Athelston	X	X				X	
Knowles		X				X	
Flowers/Huges		X	X			X	X
Steers		X		X	X	X	
Koch et al		X					
Porter et al		X		X	X	X	X
Mobley et al		X	X	X	X	X	X
Murchinsky/Morow		X	X	X	X	X	X
Arnold/Feldman		X	X			X	X
Stolzbrg/Winkler	X	X	X	X	X	X	X
Thibaut/Kelly							
Chow/Polich		X	X			X	X
Faris		X	X				
Fredland/Little		X	X			X	X
Molowidlo/Lawton		X	X				
Warner/Goldberg			X			X	X
Arguden						X	X
Bluedorn		X	X	X	X	X	X
Mowday/Lee							
OPNAV	X			X	X	X	X
Viscusi	X	X	X	X	X	X	X
Angle/Perry	X	X	X			X	X
Waite/Berryman	X	X	X	X	X	X	X
Feroglia	X	X	X	X	X	X	X
Wilcove	X	X		X	X		
Arrowood	X	X	X	X	X	X	X

TABLE 3 - Continued

## VARIABLES / FACTORS

<u>RESEARCHERS</u>	<u>EDUC.</u>	<u>MOTIVTION</u>	<u>JOB SAT</u>	<u>JOB ENVIR</u>	<u>ORG.COMIT</u>
Porter/Steers			X	X	
Lee/Wilbur	X		X		
Naylor/Vincent			X	X	
Stone/Athelston	X	X			X
Knowles			X	X	
Flowers/Huges	X	X	X	X	X
Steers	X		X	X	X
Koch et al			X		
Porter et al	X		X	X	X
Mobley et al	X		X		X
Murchinsky/Morow			X	X	X
Arnold/Feldman			X	X	
Stolzbrg/Winkl'r	X	X	X	X	X
Thibaut/Kelly	X	X			X
Chow/Polich			X	X	X
Faris	X	X		X	X
Fredland/Little			X	X	X
Molowidlo/Lawton	X				
Warner/Goldberg	X				
Arguden					
Bluedorn	X		X	X	X
Mowday/Lee		X			X
OPNAV	X	X	X	X	X
Viscusi	X		X	X	X
Angle/Perry			X	X	X
Waite/Berryman	X	X	X	X	X
Feroglia	X		X		
Wilcove	X		X		X
Arrowood	X	X	X	X	X

TABLE 3 - Continued

## VARIABLES / FACTORS

<u>RESEARCHERS</u>	<u>FAM.SAT</u>	<u>ECON.ENVR</u>	<u>ALT.OPP</u>	<u>MIL.OCUP</u>	<u>PAYGRDE</u>
Porter/Steers					
Lee/Wilbur		X			
Naylor/Vincent					
Stone/Athelston					
Knowles					
Flowers/Huges	X	X	X		
Steers		X			
Koch et al	X				
Porter et al	X	X	X		
Mobley et al	X	X	X		
Murchinsky/Morow	X		X		
Arnold/Feldman	X	X	X		X
Stolzbrg/Winkler	X	X	X	X	X
Thibaut/Kelly			X		
Chow/Polich		X		X	X
Faris	X			X	X
Fredland/Little			X	X	X
Molowidlo/Lawton		X		X	X
Warner/Goldberg		X		X	X
Arguden		X		X	X
Bluedorn		X	X	X	X
Mowday/Lee				X	X
OPNAV	X	X	X	X	X
Viscusi		X	X		
Angle/Perry	X	X	X		
Waite/Berryman	X	X	X	X	X
Feroglia				X	X
Wilcove	X		X	X	X
Arrowood		X	X		



TABLE 3 - Continued

## SUMMARY OF VARIABLES CONSIDERED IN PAST STUDIES

## VARIABLES / FACTORS

RESEARCHERS	COMIS.	SOURCE	PROM.	OPP	MIL.	TASTES	FAM.	BKGRD
Porter/Steers				X				
Lee/Wilbur								
Naylor/Vincent								
Stone/Athelston								
Knowles								
Flowers/Huges				X				X
Steers				X				X
Koch et al								
Porter et al				X				
Mobley et al				X				
Murchinsky/Morow				X				X
Arnold/Feldman				X		X		X
Stolzbrg/Winkler	X			X		X		X
Thibaut/Kelly								
Chow/Polich				X		X		
Faris	X			X		X		X
Fredland/Little								X
Molowidlo/Lawton				X		X		X
Warner/Goldberg				X				
Arguden				X		X		
Bluedorn								
Mowday/Lee	X							X
OPNAV	X			X		X		X
Viscusi								
Angle/Perry								
Waite/Berryman	X			X		X		X
Feroglia				X		X		X
Wilcove				X		X		X
Arrowood				X				X

TABLE 4

DETERMINANTS OF TURNOVER AND SIGN OF EFFECT

**1. Individual Factors**

Gender (M)  
 Age (-)  
 Race (M)  
 Tenure (-)  
 Education (+)  
 Martial Status (-)  
 Number of Children (-)  
 Intelligence (+)  
 Vocational Interest (M)  
 Aptitude (M)  
 Alternate Income Sources(+)  
 Personality (M)

**2. Work Related Factors**

Recognition/Feedback (-)  
 Job Autonomy/Responsibility (-)  
 Supervisory Characteristics (M)  
 Job Satisfaction (-)  
 Organizational Commitment (-)  
 Seniority Provisions (M)  
 Role Clarity (-)  
 Person-Job Congruence (-)  
 Occupation-Role Integration (-)  
 Organization/Job Prestige  
 Pay (-)  
 Task Repetitiveness (+)  
 Technology  
 Work Unit Size (+)  
 Organization Size  
 Job Expectations (M)

**3. Economic Opportunity Factors**

State of National Economy (+)  
 State of Local Economy (+)  
 Type of Industry (-)  
 State of Industry (nr. of vacancies) (+)  
 Presence of Secondary Labor Market (+)  
 Alternate Income Source (welfare) (+)

**Note:** (-) negative relationship to turnover  
 (+) positive relationship to turnover  
 (M) mixed relationship to turnover

### III. DATA AND METHODOLOGY

#### A. DATA

The data for this thesis are from the 1985 DOD Survey of Officer and Enlisted Personnel. The 1985 Survey was conducted by the Defense Manpower Data Center (DMDC) under the auspices of the Office of the Assistant Secretary of Defense (Force Management and Personnel).

The Officer and Enlisted Survey was conducted to provide a systematic look at "policy-sensitive information about the military life cycle." [Doering et al, 1986] The survey included the career orientations of the active and reserve force, as well as responses to policy decisions that would affect service members and their families. The 1985 DOD Survey was also tasked with determining the reaction of military members and their households to emerging family issues.

The basic sample stratification for The 1985 DOD Survey was by service. The officer sample was stratified additionally by gender. Officers, women, and Marines were sampled at a higher rate to permit more detailed analysis of these groups.

The officer population from which the 1985 DOD Survey was sampled consisted of active duty officers serving anywhere in the world on 30 September 1984. Table 5 shows

the sample response of Naval Officers by gender. Sample members are those active duty officers with four or more months of service on 30 September 1984, while eligible members were those not separated from the military when the survey questionnaire was distributed.

**TABLE 5**  
**SAMPLE ALLOCATION OF NAVY OFFICERS BY GENDER**

	<u>Sample</u> <u>Members</u>	<u>Eligible</u> <u>Members</u>	<u>Usable</u> <u>Surveys</u>	<u>% of</u> <u>Eligible</u>
Male	3,736	3,593	2,933	81.6%
Female	1,310	1,271	1,042	82.0%
Total	5,046	4,864	3,975	81.7%

**Source:** 1985 DOD Survey of Officer and Enlisted Personnel  
[Doering et al, 1986]

The nine subject areas contained in the questionnaire are described in Table 6. The 1985 DOD Survey was constructed to allow it to be contrasted with an earlier (1978) Rand DOD Survey. The Users Manual and Codebook [Doering et al., 1986] provided the documentation for the data base.

TABLE 6

SUBJECT AREAS

The 1985 DOD Survey of Officer and Enlisted Personnel

**Section I - Military Information.** Basic military data such as branch of service, paygrade, length of service and commissioning source.

**Section II - Present and Past Locations.** Asked such questions as length of present tour, and problems associated with or moving to the present location.

**Section III - Reenlistment/Career Intent.** Posed questions based on hypothetical options, as well proposed future career choices. This section used a probabilistic assessment of intentions.

**Section IV - Individual and Family Characteristics.** Basic individual demographic data such as sex, age, marital status, etc.

**Section V - Dependents.** This area focused on several specific questions about the number and condition of dependents.

**Section VI - Military Compensation, Benefits and Programs.** This section asked about a broad range of family programs and the satisfaction felt about current benefit plans.

**Section VII - Civilian Labor Force Experience.** This segment of the survey centered around such items as a second civilian job, and the sources of income outside of military pay.

**Section VIII - Family Resources.** This section dealt with spouse income and financial contributions to the family economic environment.

**Section IX - Military Life.** This area of the survey questioned the respondent about her attitude toward various aspects of military life.

**Source:** The 1985 DOD Survey of Officer and Enlisted Personnel [ Doering et al., 1986]

## B. METHODOLOGY

### 1. The Model

The conceptual model derived for this thesis is an individual intentions or choice model. As several of the studies in the literature review pointed out, an individual's intent to stay or leave an organization can be considered an immediate precursor to actual turnover.

The theoretical model for this study is:

**Turnover Intentions = f(Personal demographics, Job factors, Tenure, Economic factors, Personal influences, Alternatives)**

where:

**Personal demographics** - basic biographical information such as age and race.

**Job factors** - the service members perceptions about her job attributes such as working environment and job training.

**Tenure** - variables which describe time in the service.

**Economic factors** - variables which measure the service members financial status and perceived economic outlook.

**Personal influences** - factors which define an individuals perceptions of life prior to entry into the military such as taste and commissioning source.

**Alternatives** - individual perceptions of alternative civilian employment opportunities.

The dependent variable used to measure intent to stay or leave the Navy is constructed from responses to the question for intended length of service when an individual finally



leaves the Navy(027). As will be explained later in this study, this variable was dichotomized to capture the stay/leave intention.

## **2. Statistical Method**

Logit analysis is used to estimate the probability that a female Naval Officer intends to stay in the Navy. This technique is commonly used when the dependent variable is binary. Logit analysis estimates how the probability of an individual staying in the Navy is related to a set of explanatory variables.

The Logit model is associated with the cumulative logistic probability function where, if  $P_0$  is the probability of staying/leaving and  $X_1, \dots, X_n$  is a set of individual characteristics, the form of the general equation is:

$$P_i = F(Z_i) = \frac{1}{1 + e^{-(\alpha + \sum \beta_i X_i)}}$$

Logit analysis will provide estimates of the parameters " $\alpha$ " and the " $\beta$ 's."

## **3. Variables**

### **a. Dependent Variable**

The dependent variable used in this thesis was constructed from the continuous variable CAREER (027), which asked the question "When you finally leave the military how

many total years of service do you expect to have?" As alluded to in the literature review, the intent to stay or leave an organization has been widely accepted as the immediate precursor to actual turnover. Twenty years of active service is the first point at which an officer may retire with full pay and benefits. It is the acknowledged conclusion of the accepted career for a majority of military officers. Service beyond 20 years is governed by a myriad of policies and laws which are beyond the scope of this study. Because this study concerns the career orientations (stay in the Navy for a 20 year career) of Naval Officers, the continuous variable CAREER was dichotomized as:

**Intend to stay  $\leq$  19 years (non careerist) = 0**  
**Intend to stay  $\geq$  20 years (careerist) = 1**

Those individuals who leave the Navy before 20 years of service can be considered as "quits" in the lexicon of turnover literature.

#### **b. Independent Variables**

The variables used in this study to analyze career orientation/turnover behavior of female Naval Officers are grouped into six categories: personal demographics, personal influence, job factors, tenure, economic factors and alternatives. The responses selected from the 1985 DOD Survey as candidate variables are listed in Table 7.

The variable RACE measures discrete responses to individual ethnic origin. The sample of female Naval officers was comprised of only 7.1% non whites ie. Black, Hispanic, an Asian. Crosstabulation of individual non white racial groups with the career decision variable showed little variance in response patterns among racial groups and so all nonwhite respondents were combined into a single category of "Other."

AGE is a continuous variable with a maximum limit set at less than or equal 40 years. This ceiling was set to eliminate outliers from the data and to maintain homogeneity of the sample. It has been shown in past studies that increasing age has a direct correlation on the decision to stay with an organization. Crosstabulation of AGE by career decision showed that individuals above 40 years of age have already made the choice to remain in the Navy and, as such, contribute little to the analysis of career decisions.

Education measures the discrete responses to the type/level of schooling obtained by an individual. Because one of the fundamental qualifications for being designated an officer is a college education, levels of schooling of less than an undergraduate degree were not considered. Advanced education (MS/Phd), is further hypothesized to increase the propensity to leave the Navy based on increased

**TABLE 7**  
**INDEPENDENT VARIABLES**

**Personal Demographic Variables**

<u>Variable</u>	<u>Question</u>	<u>Value Coding</u>
RACE	039	1 = Other 0 = White
AGE	036	Continuous Max 40 Years
EDUCATION	046	0 = Undergrad Degree 1 = Advanced Degree
SINGLE	HHC1	1 = No 0 = Yes
SINGLDEP	HHC1	0 = No 1 = Yes
MILDEP	HHC1	0 = No 1 = Yes
MILNODEP	HHC1	0 = No 1 = Yes
CIVDEP	HHC1	0 = No 1 = Yes
CIVNODEP	HHC1	0 = No 1 = Yes

**Personal Influences**

TASTE	0109I	Discrete 1 = Very Satisfied 5 = Very Dissatisf.
MOMSEDUC	049A	Continuous 1 thru 20 Years
DADSEDUC	049B	Continuous 1 thru 20 Years
USNA	010	0 = No 1 = Yes

TABLE 7 - Continued

OCS	010	0 = No 1 = Yes
ROTCREG	010	0 = No 1 = Yes
ROTCSCHL	010	0 = No 1 = Yes
OTHER	010	0 = No 1 = Yes

**Job Factors**

JOBSAT	Constructed 0109A,L,M,N	Discrete 1 = Very Satisfied 5 = Very Dissatisf.
FAMSAT	Constructed 0109P,Q,R	Discrete 1 = Very Satisfied 5 = Very Dissatisf.
GURL	07	0 = No 1 = Yes
SWO	07	0 = No 1 = Yes
SUB	07	0 = No 1 = Yes
AVIATORS	07	0 = No 1 = Yes
INTEL	07	0 = No 1 = Yes
SUPL	07	0 = No 1 = Yes
EDO	07	0 = No 1 = Yes
CEC	07	0 = No 1 = Yes

TABLE 7 - Continued

PROMOPPS	0109K	Discrete 1 = Very Satisfied 5 = Very Dissatisf.
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**Economic Factors**

PAYRTM	Construct 0108B,C 0109E,H	Discrete 1 = Very Satisfied 5 = Very Dissatisf.
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FINSTATS	(Income2-DEBT)	Continuous
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**Tenure**

TENURE	06	Continuous Max 10 Years Min 1 Year
--------	----	--

**Alternatives**

CIVJOBOP	096	Discrete 0 = No Chance 12 = Certain
----------	-----	---



availability of alternative (civilian) employment opportunities.

Martial status and the number of dependents were combined by DMDC within the 1985 DOD Survey to arrive at a composite variable of household composition (HHC1). This variable also delineates whether the individual officer was married to a service member or to a civilian. It is hypothesized that women officers married to fellow service members would display a higher propensity to remain in the Navy than women officers married to civilians. The inclusion of the number of dependents is hypothesized to reduce a woman officer's propensity to stay in the Navy as the burdens of child rearing exert an influence on the family unit and the pressure to revert to a traditional family role model increases. Individuals who responded that they had no dependents were grouped within the variables designated "nodep." Those individuals with one or more dependents were grouped into the variable categories designated "dep."

As discussed by Waite and Berryman (1985) and Arguden (1986) the decision to stay or leave an organization can be influenced by factors which are developed in childhood by the family environment and exist outside of the military community or economic sphere of adulthood. TASTE is a proxy variable for attitudes developed before the decision to join the military was made. It is derived from

the response to the question "satisfaction with serving your country" This represents a pure proxy for patriotism. While the 1985 DOD Survey does not contain information concerning an individual's father's or mother's military background, it is hypothesized that taste for the military (patriotism) is a direct outcome of a strong promilitary/prodefense upbringing, and could also act as a proxy for parental military background, as well as taste for the military lifestyle.

Mother's and Father's education is also seen as influencing the career orientation of female Naval officers. The higher the educational level attained by the parents (particularly the mother in the case of this study), the more likely is the daughter to strive for the same educational level. The variables MOMSEDUC and DADSEDUC are continuous variables representing one through 20 years of schooling. Waite and Berryman (1985) also state that the higher the educational achievement of an individual female, the more likely is that woman to seek a nontraditional job (the Navy) because she perceives more employment opportunities than her lesser educated sisters. The converse of this is that the higher the educational achievement, the more alternative (civilian) employment opportunities are perceived as available, which would decrease a female Naval officer's propensity to remain in the service.

Commissioning source was chosen because it represents both a career choice made by the individual and the transition between civilian and military life. The choice of commissioning source made by an individual has a direct influence on the level of commitment to the organization [Mowday and Lee, 1986]. It portrays the level of commitment to the Navy as determined by premilitary influences. It is hypothesized that Naval Academy graduates, because of the rigorous competition required for entry and graduation, would have a higher propensity to remain in the Navy than their non Academy peers. Commissioning sources were grouped as follows ( the acronyms in parentheses are the variable designations listed in Table 7):

- United States Naval Academy (USNA)
- Officer Candidate School (OCS)
- Reserve Officer Training Corps - regular (ROTCREG)
- Reserve Officer Training Corps - scholarship  
(ROTCSCHL)
- Other (OTHER)

These variables were used to interpret the individual female Naval Officer's perceptions and feelings concerning her job environment, her family's satisfaction with her job and her individual occupation within the Navy. Job satisfaction (JOBSAT) was constructed using the principal component method of factor analysis. Factor

analysis is a statistical technique which allows the researcher to extract from a large number of candidate variables a smaller set of underlying variables (factors), which closely represent the original set. The major objective of principal component analysis is to select a number of components which explain as much of the total variance as possible. Job satisfaction was examined through the service members responses to survey questions regarding:

- Satisfaction with personal freedom in current job (O109A)
- Satisfaction with job training (O109L)
- Satisfaction with job security (O109M)
- Satisfaction with working environment (O109N)

These four questions all loaded heavily into one factor renamed JOBSAT, which implied a strong degree of commonalty or mutual association. A single index was formed as indicated below:

$$\text{JOBSAT} = ((\text{FScore}_a \times \text{O109A}) + (\text{FScore}_1 \times \text{O109L}) \dots + (\text{FScore}_n \times \text{O109N}))$$

Family satisfaction (FAMSAT) was constructed in the same manner using the individual responses to questions concerning:

- Satisfaction with medical care (O109P)
- Satisfaction with dental care (O109Q)
- Satisfaction with commissaries (O109R)

The influence of an individuals specific occupation was captured through answers to a question on designators (O7). The designator of a Naval Officer reflects both her occupational specialty as well as various levels of qualification. The designation received by a Naval Officer also determines her career path and initial as well as subsequent obligations to the Navy. It is hypothesized that it will have a direct influence on her decision to pursue a career in the Navy or to leave the service. Designators were grouped into the following categories:

- General Unrestricted Line (GURL)
- Surface Warfare (SWO)
- Submarines (SUB)
- Pilots/ Naval Flight Officers (AVIATION)
- Intelligence (INTEL)
- Supply Officers (SUPL)
- Engineering Duty Officers (EDO)
- Civil Engineer Corps (CEC)

Designators are the same for males or females and represent similar career paths, education, training and duties. This fact will aid in testing the hypotheses of Wilcove (1983) and Viscusi (1980) that women within the same occupations as their male counterparts have a higher commitment to their jobs. Those designators held by

individuals in professional occupations such as doctors, lawyers, clergy etc. were not included because their career paths and education differ so radically from the mainstream of the Navy. Also excluded from this study were Warrant Officers and Limited Duty Officers. These individuals are enlisted personnel who, through prior performance and technical proficiency, are granted officer status. Because they have already completed up to ten years of service, and have markedly different attitudes and career paths, it was felt that their inclusion would bias the results of this analysis. Satisfaction with promotion opportunities PROMOPPS (0109K) was included as a variable based on Hiller (1982) and Waite and Berryman (1985). These studies showed that satisfaction with promotion opportunities was an effective predictor of female turnover behavior.

These variables were selected in order to examine the effects of present and future pecuniary benefits as well as the economic environment of the individual Naval officer

The variable PAYRTM (pay and retirement) is a constructed variable derived from factor analysis using the same methods used to create JOBSAT and FAMSAT. PAYRTM was created from responses to questions concerning:

- Future military personnel will not have as good retirement benefits as I have now (0108B)
- Future pay and benefits will not keep up with inflation (108C)

- Satisfaction with pay and allowances (Q109)
- Satisfaction with retirement benefits (Q109H).

The present financial status (FINSTATS) of each respondent was calculated from two variables, INCOME2 "Total family income" and DEBT (Q102) "Estimated outstanding debts." INCOME2 was computed by DMDC from responses to questions concerning base pay, BAS (Basic Allowance for Subsistence) BAQ (Basic Allowance for Quarter) VHA (Variable housing allowance) and additional data from the 8503 JUMPS file (Joint Uniform Military Pay Schedule). Included within the calculations for INCOME2 are the additions of any income received by a working spouse. It represents all income available to a given individual. The variable DEBT contains information on an individual's total debt. The DMDC question asked for discrete responses to an ascending scale of debt ranges. For the purposes of this study the variable DEBT was recoded to allow a specific dollar amount of debt to be calculated, using the midpoint of each debt range within the survey question. Financial Status (FINSTATS) was then calculated by subtracting total debt from total family income (INCOME2). This variable will reflect the monetary influence of actual pay and benefits, the influence of a working spouse and his added income, as well as the financial stability of an individual Naval officer.



Tenure was found throughout the literature review to be consistently negatively related to turnover. While recent studies by Weiss (1984) and Solnick (1987) argue that tenure when used as an explanatory variable exposes model estimates to simultaneity bias, it was included as a variable because tenure in this thesis is constrained between decision points. TENURE for this study was computed using responses to the question "How many months of active duty do you currently have" (06). Responses were limited to those officers with between one and ten years of active service. Crosstabulation of TENURE by the the dependent variable CAREER revealed that beyond the ten year point the numbers of members who do not plan to make the Navy a 20 year career was very small. The exclusion of those women with less than one year of service is based on Viscusi's (1980) finding that women with more than one year of tenure had lower turnover rates than males in comparable occupations.

The models discussed in the literature review suggest that turnover behavior and the stay / leave decision is strongly related to availability, or perceived availability of alternate employment opportunities. The measure for perceived civilian employment opportunities (CIVJOBOP) is contained within the 1985 DOD Survey question 096. This variable measures the service member's perception of civilian employment opportunities without her having made

the decision to look for civilian employment. This is important in that past studies suggest that intent to search for alternate employment is a precursor to actual quitting.

### C. PERSONNEL GROUPINGS

In order to explore the short and long-term effects of career orientation, the individuals within the data sample were subdivided into two separate groups based on stay/leave decision points within a 20 year career.

Officers differ from enlisted personnel in that they are not contractually obligated for a specific number of years. Enlisted personnel are forced to make the decision to reenlist or not reenlist at the end of their enlistment contract, or they exit from the service. By making no decision enlisted personnel will leave the Navy. In contrast, officers, by making no decision to stay or leave the Navy, are continued as long as their performance meets acceptable standards. Officers must make the decision to leave (quit).

The initial decision point reached by each Naval Officer occurs at the conclusion of her initial obligation. The initial obligation of an officer is that length of time she agrees to serve following commissioning, in return for certain types of general or specific training, or for the opportunity to serve as an officer. This obligation varies in length depending upon the occupational specialty an

officer either chooses or is selected for [Officer Distribution Manual, 1985]. Crosstabulation of obligation by length of service revealed that the highest percentage of initial obligation lengths fell between four and six years. This group of initial obligers, is the group chosen to test the short-term effects of the career decision model. They are comprised of female Naval officers with at least one and less than five years of active duty, serving within their initial obligation.

The second decision point reached by each Officer is the ten year mark. This is the midpoint of a 20 year career and marks the transition between "doing my time" and a dedicated careerist. At this point an officer has completed all of his initial training, has moved through several ranks and is a contributing member of the service. It is at this point that long-term influences begin to be felt, such as family satisfaction with the Naval career and retirement benefits. Sample members who are included in this grouping to examine long-term effects have completed their initial obligation and have between six and ten years of active service.

## IV. ANALYSIS

### A. MODEL ESTIMATION FOR TURNOVER BEHAVIOR

Initial analysis began with crosstabulation of the independent variables with the dependent variable career intentions. This analysis reveals how career intentions (defined as intending to stay in the Navy for at least 20 years) vary with individual attributes or characteristics. This method is useful for examining mean values of attributes, for reducing the number of variables, and for determining the base case for dummy variables to be included in subsequent logit analysis. The samples of men and women were divided into two groups each. Group1 members were those individuals with five or less years of service, chosen to test short-term effects as described in Chapter III. Group2 individuals were those officers selected to test long-term effects, with greater than five, but less than ten years of service. Tables 8 and 9 describe the pattern of career intentions by attributes.

Table 8 describes the percentage of female naval officers who responded that they intended to stay for a 20 year career by the attributes used in the model. A Chi-square test was computed to determine the significance of each variable.

TABLE 8

**PERCENTAGE OF FEMALE OFFICERS INTENDING A 20  
YEAR CAREER BY ATTRIBUTE**

<b>Variables</b>	<b>Group1 Mean % (n) [Prob Value]</b>	<b>Group2 Mean % (n) [Prob Value]</b>
<b>RACE</b>		
White	42.2 (287)	70.4 (253)
Other	53.8 (26) [.249]	62.5 (16) [.500]
<b>TASTE</b>		
Very Satisfied	58.5 (123)	80.7 (114)
Satisfied	36.0 (150)	66.4 (116)
Less than Satisfied	47.6 (39) [.002]	47.3 (38) [.005]
<b>CIVILIAN JOB OPPORTUNITIES</b>		
Less than some possibility	41.1 (17)	85.7 (07)
Fair possibility	71.4 (14)	83.3 (12)
Fairly good possibility	47.6 (21)	75.0 (20)
Good possibility	46.9 (32)	63.0 (27)
Probable	62.5 (32)	76.7 (30)
Almost sure	40.0 (50)	67.9 (53)
Sure	33.3 (51)	61.2 (49)
Certain	32.6 (86) [.002]	72.5 (69) [.30]
<b>FAMILY STATUS</b>		
Single	43.9 (180)	66.1 (112)
Single w/dependents	60.0 (10)	83.3 (06)
Married to service mbr with dependents	52.2 (23)	67.4 (43)
Married to service mbr no dependents	33.3 (57)	77.6 (49)
Married to civilian with dependents	35.3 (17)	66.7 (27)
Married to civilian no dependents	43.8 (16) [.46]	70.4 (27) [.72]
<b>COMMISSION SOURCE</b>		
U.S. Naval Academy	38.5 (26)	0.0 (00)
Officer Candidate Sch.	62.1 (124)	66.7 (162)
Reserve Officer Tra.	51.5 (33)	62.5 (16)
Other Source	21.1 (19) [.001]	72.7 (11) [.34]

TABLE 8 - Continued

Variables	Group1	Group2
	Mean % (n) [Prob Value]	Mean % (n) [Prob Value]
<b>EDUCATION</b>		
Undergrad Degree	43.7 (245)	68.9 (233)
Advanced Degree	41.2 (68) [.713]	72.2 (63) [.601]
<b>PROMOTION OPPORTUNITIES</b>		
Very satisfied	61.5 (39)	80.0 (35)
Satisfied	47.7 (153)	72.5 (158)
Neither satisfied or dissatisfied	33.9 (59)	72.5 (36)
Dissatisfied	34.9 (43)	61.4 (44)
Very dissatisfied	16.7 (18) [.007]	35.7 (14) [.87]
<b>DESIGNATOR</b>		
Gen Unrestricted Line	58.1 (136)	67.2 (134)
Aviation	33.3 (15)	50.0 (04)
Supply	50.0 (14)	77.8 (09)
All Others	73.6 (19) [.01]	71.4 (28) [.87]

For Group1, Race, Family Status and Education were not significant in effecting the decision to remain in the Navy. Commissioning Source, Designator, Civilian Job Opportunities, Promotion Opportunities, and Taste appear to be strong career orientation factors.

Career intentions for Group2 also appear to be unaffected by Race, Family Status or any of the other variables, with the exception of Taste, which because of the self selection process involved, still remains an influence.

Table 9 describes the mean group attribute values for those female officers who responded within each group that

TABLE 9

## MEAN GROUP ATTRIBUTE VALUES FOR CAREER INTENTIONS

<u>Variables</u>	<u>Group1</u> (F Prob)		<u>Group2</u> (F Prob)	
	<u>Career</u>	<u>No Career</u>	<u>Career</u>	<u>No Career</u>
<b>AGE</b> (in years)	27.9 (.01)	26.9	31.3 (.10)	30.5
<b>MOTHER'S EDUCATION</b> (in years)	13.8 (.94)	13.7	13.5 (.32)	13.8
<b>FATHER'S EDUCATION</b> (in years)	14.1 (.14)	14.7	13.9 (.07)	14.8
<b>FINANCIAL STATUS</b> (in dollars)	26,420 (.03)	31,380	43,850 (.95)	43,690
<b>TENURE</b> (in years)	2.65 (.01)	2.07	7.42 (.01)	7.44
Sample members	313		269	

they intended or did not intend to stay for a 20 year Naval career. An F statistic was calculated to determine the significance of the relationship of each variable to the dependent variable, career intentions.

Those women who responded that they would remain in the Navy 20 years or more in Group1 tended to be single, white and approximately 28 years old. They were commissioned through Officer Candidate School with undergraduate degrees and now are General Unrestricted Line officers with approximately two and a half years of service. Age and Tenure were significant variables in this group.



Those individuals in Group2 follow the same pattern with the exceptions of being older, 31 year average, and with seven and a half years of service. Tenure and Financial Status were the significant variables for this group, while Age proved to be significant only at the .10 level.

Comparison of the analysis for males (not shown) with that for females revealed several key factors. Males were predominantly distributed throughout the warfare, restricted line occupations, ie. Surface Warfare (SWO), Submarines (SUB), and Aviation. Women were concentrated in the General Unrestricted Line category, with only a smattering of individuals in the warfare specialties. The majority of women received their commissions via Officer Candidate School, while men tended to be commissioned through the United States Naval Academy or through Reserve Officer Training.

This disparity in sample distribution among two key variables in estimating military turnover indicated that further analysis was necessary to determine whether a single model could be estimated that would apply to two seemingly different data sets. A Chow Test was computed to determine the applicability of a single model for both male and female turnover behavior.

The Chow Test assumes that the coefficients of two regressions of career intentions on an identical set of regressors are equal, and then tests whether this null

hypothesis is correct. The estimated equations included the variables AGE, RACE, EDUCATION, USNA, OCS, GURL, SWO, AVIATION, JOBSAT, PROMOPPS, CIVJOBOP and TENURE. The appropriate F statistic is:

$$F(k, N_1+N_2-2k) = \frac{(ESS_r - ESS_{ur})/k}{ESS_{ur}/(N_1+N_2-2k)}$$

Where:

k = the number of variables;

N<sub>1</sub> = number of observations for females;

N<sub>2</sub> = number of observations for men;

ESS<sub>r</sub> = the Error Sum of Squares from an Ordinary Least Squares (OLS) regression on the total (male and female) sample.

ESS<sub>ur</sub> = the sum of Error Sum of Squares from individual male and female OLS regressions.

If the F statistic is larger than the critical value of the F distribution with k and N<sub>1</sub>+N<sub>2</sub>-2k degrees of freedom the null hypothesis is rejected. Rejection implies that two separate models must be estimated.[Pindyck and Rubinfeld, 1981] In this case, the null hypothesis was rejected, necessitating a separate turnover model for males and females. As a result, further analysis deals only with female turnover.

## B. VARIABLE REDUCTION

The initial list of candidate variables contained 32 independent attributes or characteristics. A regression

model with a large number of independent variables is generally expensive to estimate and maintain in terms of computer time and sample updating. Large regression models are also difficult and complicated to interpret. A model with numerous variables has increased opportunities for intercorrelation among the independent variables, which detracts from the model's descriptive ability and predictive power by decreasing the reliability of the regression coefficients. [Afifi and Clark, 1984] The final model for analysis must include a set of independent variables which contains enough descriptive and predictive capabilities to determine turnover intentions adequately, but does not suffer from excessive multicollinearity.

The crosstabulations of Table 8 and Table 9 highlighted variable categories with sample responses small enough as to render them statistically insignificant.

Categories showing this characteristic were combined with other variables to maintain sample size and hypothesized predictive power. Variables in this category included:

- Single with dependents (SINGLDEP) - Combined into the single variable (SINGLE).
- Reserve Officer Training Corps/Regular (ROTCREG), Reserve Officer Training Corps/Scholarship (ROTCSCHL) - these two variables were combined into the "Other Source" category (OTHRSORC).
- The designators, Surface Warfare (SWO), Submarines (SUB), Intelligence (INTELL), Civil Engineering Corps (CEC), and Engineering Duty Officer (EDO) were

combined into the variable Other Designators (OTHERDSG).

The variable USNA (United States Naval Academy), while showing zero sample cases in Group2, was kept as a variable. Women were first admitted to the Naval Academy as freshmen in 1976. This class would have been commissioned in 1980. Since the 1985 DOD Survey was conducted in 1984 all of the female graduates would still be within their first five years of service so this variable remains a valid indicator of career orientation for Group1.

The second method used to reduce the number of independent variables was the use of a logit analysis of the dependent variable, career intention, with each of the five explanatory variable categories independent of each other. This analysis was used to provide initial insight into which candidate variables would prove statistically significant in the final model estimation. The "t-test" (alternately called the Z score or standard normal variate ratio) [Aldrich and Nelson, 1984] of the logit analysis was used as an indicator of significance, not as a determining factor as to whether a variable would remain in the model. Each "t-test" was weighted against prior research on its value to the descriptive power of the model as a whole. Thus an explanatory variable with a low "t-test" but significant theoretical predictive power remained in the model. It was felt that to delete these variables would bias the remaining

variables impact on the turnover model. The logit analysis led to the deletion of the variables for Financial Status (FINSTATS) and Father's Education (DADSEDUC).

## C. RESULTS OF THE TURNOVER BEHAVIOR MODEL

The results of the logit analysis of the career orientation/turnover behavior model for each group of female naval officers (short-term effects and long-term effects) are shown in Table 10. A detailed discussion of the results follows.

### 1. Group1

For Group1, Age was the was the only personal demographic variable coefficient found to be significant to at least the .1 level. Older women within Group1 are more likely to be career oriented than younger women within their first five years of service. This supports the findings of previous researchers. The effect of Race and Education on career intentions was small and not significant. This can be attributed to the homogeneity of the sample in which 92.7% of the individuals responding were white and all had at least an undergraduate degree.

None of the coefficients for Family Status proved to be significant at the .1 level. The effect of marriage and children appears to be quite small in estimating the probability of female officers staying in the service for 20 years in this group.

TABLE 10

## CAREER ORIENTATION/TURNOVER BEHAVIOR MODEL

Variables	Logit Coefficients			
	Group1	Coef/SE	Group2	Coef/SE
AGE	.037*	1.65	-.045	-1.33
RACE	.205	.88	.015	.04
EDUC	.143	.78	-.033	-.19
MILDEP	.047	.19	-.257	-1.12
MILNODEP	-.283	-1.58	.270	1.21
CIVDEP	-.408	-1.29	-.212	-.83
CIVNODEP	-.382	-1.18	-.187	-.72
JOBSAT	-.244***	-3.00	.026	.28
FAMSAT	-.005	-.08	-.140*	-1.84
PAYRTM	-.036	-.75	-.053	-.56
PROMOPPS	-.073	-.95	-.186**	-2.33
AVIATION	-.171	-.51	-.126	-.22
SUPPLY	.232	.66	.116	.25
OTHERDSG	.502*	1.76	-.097	-.38
MOMSEDUC	-.015	-.61	-.026	-.82
TASTE	-.239**	-2.31	-.275***	-2.59
USNA	-.799***	-2.59		
OTHRSORC	-.295**	-2.03	.203	1.22
TENURE	.136**	2.27	.249***	4.11
CIVJOBOP	-.057***	-2.71	-.042	-1.30
Sample cases (n)	321		271	

\*\*\* = t significance level  $\leq .01$

\*\* = t significance level  $\leq .05$

\* = t significance level  $\leq .10$

Job related factor coefficients were all small and negative throughout the short term, with the exception of Job Satisfaction, which is consistent with previous research. The Job Satisfaction coefficient was significant at the .01 level.

For the designator variables, only those women in occupations other than GURL, Aviation or Supply appear to be



career oriented in the short-term. Occupation then has very little effect on turnover behavior for Group1.

The personal influence variables were the most significant variables in modeling turnover behavior in Group1. Taste was significant at the .05 level. This was expected as a self selection process occurs. Those individuals who have a strong taste for the military service will tend to make it a career while those who do not will quit. Those officers commissioned through the Naval Academy showed strong career tendencies (.01 level) as was hypothesized. The coefficient for Mother's Education was small and not significant.

The Tenure variable followed it's predicted course. The regression coefficients imply that the longer an officer remains in the service the more likely is she to make the Navy a 20 year career.

The coefficient for the Civilian Job Opportunities variable proved to be significant at the .01 level in the short-term. The better a Naval Officer thinks her chances of finding a good civilian job are should she leave the military, the less likely is she to make the Navy a career.

Pay and Retirement proved not to be significant in this analysis. This supports earlier research that service members do not remain in the military for monetary benefits to any significant degree.



## 2. Group2

The personal influence logit coefficients for Group2 were small and not statistically significant. The sign of these coefficients indicates that there is some slight, negative estimate of effect on female officer career orientation, but it is statistically insignificant.

The coefficient for Education was small and not statistically significant, though like the coefficient for Age, can be interpreted as having a slight negative effect on staying for a 20 year career.

The coefficients for Family Status within Group2 show that the presence of children acts to increase turnover for female naval officers. All of the regression coefficients depicting the presence of children were negative, albeit small and not significant. The coefficients for a military couple without children, while not significant is positive, and tends to support this conclusion.

The variables for job factors showed that for a female officer with greater than five years of service Promotion Opportunities and Family Satisfaction have the most significant effect on career intentions. Promotion Opportunities were significant at the .05 level and Family Satisfaction was significant at the .1 level.

The logit coefficients for the variables Tenure and Taste were significant to the .01 level in Group2. This was expected. For Taste, those respondents who have a decided

taste for the Navy will tend to make it a career while those who do not will leave. Tenure has shown to be statistically significant by other researchers. In the case of the Naval officer, tenure in the service also brings her closer to the prospects of retirement benefits, influencing her to remain in the service for a 20 year career.

### **3. Group Differences**

In comparing the probability of staying in the Navy for a 20 year career between groups, it must be remembered that it is a comparison across time as well. Since officers will be continued as long as performance standards are met, differences in the logit coefficients represent attitudinal changes in the individual female naval officer in regards to her career orientation, given her individual attributes or characteristics.

The coefficients for Age shifted from positive in Group1 to negative in Group2. This was unexpected. Age generally reduces quits. This result can be interpreted several ways. A woman could become dissatisfied with the Naval service with advancing age, or sees her opportunities within the military declining and perceives better alternatives in the civilian labor market.

The coefficient for the variable Education, like Age, became negative the longer a woman stays in the Navy. While neither of these variables was significant to the levels tested to in this thesis, the emerging pattern

indicates that the older and more experienced (educated) a woman becomes the less likely is she to remain in the Navy. Her perceptions of the available opportunities, and alternatives in the civilian market, combined with restricted career paths as indicated by the coefficients for Designator, influence her to leave the service.

The coefficients for Family Status variables in Group2 were all small and not statistically significant. The slight influence of these variables on effecting turnover behavior appears to indicate that a female officer married to a fellow service member with children, is more likely to leave the service the longer she remains in the Navy. In contrast, the military couple with no children shows a positive coefficient in the long-term, indicating that the effect is for the female officer to stay for a career. In this case she enjoys all of the advantages of a dual income couple without the career disincentive of children drawing her away from her work.

Among the job factor variables, the shift in coefficient significance from Job Satisfaction in Group1 to Promotion Opportunities in Group2 suggests that promotion opportunities have a more significant effect on reducing quits over time than job satisfaction. Tenure and Taste have more effect on Group2 than on Group1 supporting earlier research.

#### D. VALIDATION OF THE TURNOVER BEHAVIOR MODEL

The probability of a female naval officer remaining in the service for a 20 year career given her characteristics is determined by the summation of the products of the coefficients multiplied by their variable values.

The probability of an individual from Group1 remaining in the Navy for example would be:

$$\begin{aligned} Z^* = & 1.133 + .037AGE66 + .205RACE + .143EDUC + .047MILDEP - \\ & .283MILNODEP - .408CIVDEP - .382CIVNODEP - .244JOBSAT - \\ & .005FAMSAT - .036PAYRTM - .073PROMOPP - \\ & .171AVIATION + .232SUPPLY + .502OTHERDSG - .015MOMSEduc - \\ & .239TASTE - .799USNA - .2950THRSORC66 + .136TENURE - .057CIVJOBOP \end{aligned}$$

The value which results from this equation is the index  $Z^*$ , which is assumed to be a normally distributed random variable.

The predicted probabilities of staying in the Navy were computed for each group. These results were then compared to the mean value of the career intention variable for each group. For Group1 this was .435, for Group2, .062. These mean values were utilized as the cut-off points for career intentions. Individual cases where the predicted probability value was greater than the cut-off point were predicted to stay for 20 years. Cases with values lower than the cut-off point were predicted to quit prior to 20 years. The predicted career intentions values (as determined from the model) were compared to the known career intentions as reported by the individual female officers in

the 1985 DOD Survey. The comparisons for each group are shown in Table 11 as is the overall accuracy of each model.

The model overpredicted careerist in Group1 and under predicted careerists in Group2. The difference in overall accuracies indicate that the model is superior for Group1. Factors other than those selected are influencing the turnover behavior of Group2 officers.

**TABLE 11**  
**INTENT VS. PREDICTED TURNOVER BEHAVIOR**  
(at P = Mean Response Rate)

		<b>Group1</b>		
		<b>Predicted Careerist</b>		
		<b>No</b>	<b>Yes</b>	<b>Sample n</b>
<b>Intends to be a Careerist</b>	<b>No</b>	74.9%	35.3%	(181)
	<b>Yes</b>	25.1%	64.7%	(140)

n = 321

% correctly classified: 70.0%

		<b>Group2</b>		
		<b>Predicted Careerist</b>		
		<b>No</b>	<b>Yes</b>	<b>Sample n</b>
<b>Intend to be a Careerist</b>	<b>NO</b>	40.1%	10.6%	(81)
	<b>Yes</b>	59.9%	89.4%	(190)

n = 271

% correctly classified: 57.0%

## V. CONCLUSIONS

### A. FINDINGS OF THE STUDY

This thesis developed and tested the relative importance of biodemographic, economic, family and job related factors for the short-term and long-term career decisions of female naval officers.

The most significant and remarkable effect across the models was the shift in emphasis from job satisfaction in Group1 to promotion opportunities in Group2. It can be concluded from this finding that the opportunity for advancement supplants job satisfaction as the greatest contributor to remaining in the Navy over time for female officers. When this factor is blended into the long term effects as a whole it can be deduced that female naval officers are under tremendous pressure to excel or get out of the military, both from within the Navy and from family pressure.

Women in the Navy have few real career opportunities. Their careers are effectively capped at that ten year point due to lack of billets and promotional opportunities. Women are channeled into the narrow administrative fields of General Unrestricted Line, where there are not enough leadership billets to provide the necessary job experience to allow for promotion. They are restricted by law from



moving to the more open combat specialties. The older a female naval officer gets the less likely she is to remain in the Navy because she sees her opportunities diminishing, and perceives more satisfactory alternatives in the civilian labor market.

If a woman is married to a fellow military member during her first term of service she is more likely to remain in the Navy as long as she has no children. This follows very early studies which focus on economic concerns as the reason for staying. It can also be concluded that the pressures of military life are more bearable to the childless family group when both are in the service. Yet into the second term family satisfaction becomes significant and the military wife and mother sees home responsibilities negatively affecting her career, or the need for greater economic returns forces her to seek civilian alternatives.

The fact that being married to a civilian is a negative influence comes as no surprise. Women competing in non-traditional occupations is still too new a concept. Men have traditionally been the wage earners, and if the job called for movement the woman was expected to move the household with him regardless of her employment commitments. It is this tradition which forced women to seek highly transportable skills in the secondary labor market, which required little updated training and thus could be stopped and renewed during a relocation. Occupations such as sales



clerk, nurse, teacher, and real estate agent all fit this category. Males have not found the niche of "house husband" quite so appealing. Family pressures could easily influence the female naval officer to quit before 20 years.

## **B. RECOMMENDATIONS FOR FUTURE RESEARCH**

Future research in this area should follow the views of Stolzenberg and Winkler (1983), by comparing the perceived alternatives available to military career versus the civilian labor market. Focusing on levels of absolute satisfaction, as were available in the 1985 DOD Survey, limits the applicability of the derived metrics.

A means of occupational comparison between men and women needs to be developed for the military. Perhaps a sample of males in administrative positions similar to women's would provide a useful basis for comparison. Because men are predominantly distributed in the warfare specialties, and only perform strictly administrative duties while attached to shore installations, a sample composed of men assigned ashore, disregarding occupational specialty, would lend itself to more exacting comparison.

The effect of the recent birth of a child has been suggested by Solnick, (1988) as one event likely to affect female quits. This information was not available in the 1985 Survey and could provide a key attribute in determining female turnover.

This study used the intent to make a 20 year career as the dependent variable based on individual responses. A more accurate study could be accomplished using longitudinal data which would provide information on actual turnover. Coincident with the need for more specific data, the career decision has shown to be much more complex process than a simple yes/no decision. It is really a series of decisions based in part on factors that change over time. The use of more sophisticated techniques, such as hazard functions or sequential probit analysis, may provide greater understanding of the complex issue of military turnover.

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